

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

Overview

- The Hazard: Within the public health arena, there are many different types of health hazards which can impact our State's inhabitants. Health hazards may result from communicable disease outbreaks, natural disasters such as an earthquake or volcanic eruption, or severe weather event. This document will focus on communicable disease hazards that affect humans. Many diseases can infect both animals and humans, in fact, of the approximately 1,500 diseases that can affect people; about half are transmissible between animals and humans. These diseases are called zoonotic diseases or zoonoses. A zoonotic disease agent has a non-human vertebrate as its usual host, but possesses the capability to infect humans. Zoonotic diseases are a serious and growing public health concern throughout the world in part due to advances in transportation, human and animal populations living in closer proximity, changes in animal husbandry practices, and climate changes.
- Previous Occurrences – Many recent emerging and re-emerging infections have involved zoonotic disease agents, including Lyme disease, West Nile, Ebola, avian influenza, anthrax, Hantavirus, and variant Creutzfeld-Jacob disease. Washington has had experience with many of these agents.
- Probability of Future Events – Determining the probability of future public health events is difficult. There are many factors which influence the probability of future outbreaks of disease and include ill travelers coming in to our region, and increased proximity between animals and people. Another contributing factor includes Washington's role in the global economy. Because of this, the State's potential risk is elevated by several factors: the large number of passengers arriving on daily basis at any of our air or sea ports; infected animals coming into our region through shipping containers that may not be known to be on board the vessels; animals being imported for sale (both as pets and as a food source); or the illegal sale of banned or dangerous animals. Likewise, another potential disease source includes infected animals traveling across the border from neighboring states or British Columbia. Avian diseases could be brought in by birds on their annual migration from Alaska and Canada, or from areas as far south as Mexico or South America. Even travelers to foreign countries who visit agricultural areas may unknowingly transport animal diseases to this country. Contaminated garbage tossed overboard from a ship off the coast has also been identified as a potential source of disease when it washes on shore and is eaten by animals. The transporting of patients from one hospital to another can be a vector for disease transmission, as can visiting someone who is ill in a hospital or nursing home.
- Jurisdictions at Greatest Risk – Determining jurisdictions at greatest risk is dependent upon several factors, including the type of illness being considered, the area in question, and whether it is human or animal based. The Puget Sound region is home to international airports through which large populations of individuals and animals travel on an annual basis from all areas of the

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

world. In addition, all jurisdictions have a risk potential from diseases being transmitted from region from annual bird migrations. More densely populated areas have a greater risk for the transmission of human diseases, while areas with a higher density of animals may have a higher potential for the spread of diseases affecting animals. Because of these factors, the information provided in this document will not be specific to any one jurisdiction, but will provide a general overview of the hazard and its impacts.

- Special Note – The intent behind this hazard profile is not to provide an all-encompassing source of information, but to increase awareness of the potential hazards. Therefore, this profile will not attempt to estimate potential losses due to any of the diseases discussed. Additionally, the profile will not address all potential epidemics which our region may be susceptible to, but will only address those which are more commonly known. The Washington State Departments of Health and Agriculture remain the primary source of information for this hazard profile.

Introduction^{1,2}

An outbreak is defined by the CDC as the occurrence of more cases of disease than normally expected within a specific place or group of people over a given period of time. Washington Administrative Code (WAC) 246-101 includes a number of responsibilities related to reporting outbreaks. All outbreaks or suspected outbreaks of foodborne or waterborne disease are immediately notifiable to the local health jurisdiction in which the patients reside. Potential reporters include health care providers, health care facilities, laboratories, veterinarians, schools, child day care facilities, and food service establishments.

Outbreaks or suspected outbreaks of disease that occur in a health care facility or are treated by a health care provider are also notifiable to the local health jurisdiction. These include, but are not limited to, suspected or confirmed outbreaks of chickenpox, influenza, viral meningitis, nosocomial infection suspected due to contaminated food products or devices, or environmentally related disease.

Veterinarians must notify the local health officer of any suspected case or suspected outbreak of any disease that is transmissible from animals to humans, including anthrax, brucellosis, viral encephalitis, plague, rabies, psittacosis, tuberculosis, and tularemia.

An epidemic refers to the outbreak and rapid spread of a disease in a community (city, county, state) affecting a significant number of people or animals in a relatively short period of time. A pandemic is an outbreak of a disease in many countries at the same time. This section addresses both animal and human epidemics, the first section focusing on animal diseases, and the second section on human diseases. Diseases that can infect both animals and humans are called zoonoses. A zoonotic disease agent has a nonhuman vertebrate as its usual host, but possesses the capability to infect humans. Zoonotic diseases are a serious and growing public health concern throughout the world. Many recent emerging and re-emerging infections have involved

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

zoonotic disease agents. Disease epidemics and pandemics can have serious socio-economic impacts on our state.

Animal epidemics can cause economic losses due to the death of livestock or the necessity for euthanasia due to exposure, the need for disposal of the carcasses before they become a secondary health hazard, loss of primary food supplies, such as the possible loss of meat and/or dairy products and animal byproducts such as wool, the loss of national and worldwide agricultural markets, and the loss of recreation as occurred in Washington State with the death of a majority of the coastal razor clam population. Two examples of zoonotic diseases that have recently become prominent in Washington State are Lyme Disease and West Nile Virus. Both of these diseases are zoonoses and were only recently transmitted to humans. Rabies, another a zoonotic disease, has been with us for centuries. It is possible that many of the epidemics that decimated portions of the world's population had their origin in animal populations, or that animal populations were hosts or carriers of diseases once thought to be eliminated or controlled.

Part I: Animal Epidemics^{3,4,5,6,7,8,9,10,11}

The U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service details the most dangerous animal disease threats in the list below. Of the 17 listed, those which have the "(F)" designation are zoonotic diseases, and are normally fatal to the animal, either due to death from the disease, or the need to euthanize the animal to control an outbreak.

1. Avian Influenza (H5N1) - High Pathogenic (F)
2. Foot-and-Mouth Disease
3. Rift Valley fever (F)
4. Exotic Newcastle Disease
5. Nipah and Hendra virus (F)
6. Classical swine fever
7. African swine fever
8. Bovine spongiform encephalopathy (Mad Cow)
9. Rinderpest
10. Japanese encephalitis (F)
11. African horse sickness
12. Venezuelan equine encephalitis (F)
13. Contagious bovine pleuropneumonia
14. Ehrlichia ruminantium (Heartwater)
15. Eastern equine encephalitis (F)
16. Coxiella burnetii (F)
17. Akabane virus

The United States Department of Agriculture provides a semi-annual report to the World Organization for Animal Health on the United State's status for animal diseases confirmed to be present in specific livestock, poultry and agricultural species. The June

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

2008 report is provided at the end of this section for reference, identified as Table 1.

The Washington State Hazard Mitigation Plan will not address all 17 diseases listed, but will provide only a summary of those diseases which have been confirmed within Washington State, pose a potential impact upon our agriculture or food supply, national and international markets, and directly impact our state.

Avian Influenza (AI) is a highly contagious viral infection caused by the influenza A virus which can affect several species of food producing birds (chickens, turkeys, quails, guinea fowl, etc.) as well as pet birds and wild birds. Wild birds are considered the reservoir for influenza viruses because more influenza subtypes circulate among wild birds than human or other animal species. Most, animal influenza viruses do not infect humans. However, avian influenza viruses can sometimes cross this barrier and directly affect humans. This was demonstrated in 1997, when an outbreak of avian influenza A (H5N1) viruses infected both domestic poultry and humans in Hong Kong, leading to 18 hospitalizations and 6 deaths. Since then, other outbreaks of avian viruses, (such as H9N2 in 1999, H7N2 in 2002, H7N7 in 2003, and H5N1 in 2004) have occurred and been found to spread from infected birds to humans. Fortunately, at this time, avian influenza lacks the ability to easily spread from person-to-person.

Bovine Spongiform Encephalopathy (BSE) is one variety of a group of diseases known as "Transmissible Spongiform Encephalopathies" (TSEs). TSEs cause microscopic holes in the brain, giving it a sponge-like appearance under a microscope. TSEs are always fatal and affect both humans and animals. Scientists believe cattle can become infected when they eat feed that contains remnants of infected animals. Although rarely transmissible to humans, BSE manifests itself in the form of variant Creutzfeldt-Jakob disease (vCJD) in humans. CJD has been linked primarily to the consumption of beef from animals infected with bovine spongiform encephalopathy (BSE), the medical term for mad cow disease. In 2003, a cow in Washington State tested positive for BSE.

Exotic Newcastle Disease is a deadly avian disease caused by a virus. This extremely contagious disease affects all species of birds, and is spread by contact with infected birds or materials contaminated with the virus. Infections also occur in humans, but have not been reported in other species of mammals. In the United States, one epidemic in 2002-2003 resulted in the death of more than three million birds and caused industry losses estimated at \$5 billion. Exotic Newcastle Disease was also diagnosed in October 2007 in poultry flocks in Los Angeles County, California, where it spread to commercial egg-laying facilities in that state. The disease was also discovered in backyard flocks in Nevada, New Mexico, Arizona and Texas. As a result, some 13 countries placed restrictions on U.S. or California poultry products or banned products entirely. In an effort to mitigate the potential transmission of the epidemic to Washington State, the Washington State Department of Agriculture (WSDA) adopted an emergency rule in January 2008 to keep

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

infected birds and contaminated materials out of the state. In total, due to the 2007 epidemic, more than three million birds were euthanized to stop the disease from spreading and eradication efforts cost \$175 million. Exotic Newcastle Disease has not been detected in Washington and WSDA is working with the poultry and egg industries to keep it out.

Foot and Mouth Disease (FMD) is a highly contagious viral disease of cattle and swine, as well as sheep, goats, deer, and other cloven-hoofed animals. FMD is devastating to livestock and has critical economic consequences with potentially severe losses in the production and marketing of meat and milk. The disease is difficult to control, and has occurred in over 60 percent of the world. In today's highly mobile environment, there exists the potential that FMD could be accidentally introduced and disseminated in the United States. If FMD were to spread here, the cost of containment and eradication could reach billions of dollars, causing extraordinary economic damage. Washington State cattle are a primary agricultural resource.

Lyme Disease is a bacterial disease that is carried by deer ticks, exists in other animals besides humans and deer, and affects humans. Animals become infected with Lyme disease when they are bitten by ticks carrying *B. burgdorferi*. Ticks that carry Lyme disease are very small and can be hard to see. These tiny ticks bite mice infected with Lyme disease and then bite people or other animals, such as dogs and horses, passing the disease to them. For years, all canine cases appeared to get their infections in other parts of the country. That is no longer the case, and the disease has been diagnosed in areas where it was previously absent. Unlike most other ticks, the deer tick is native to Western Washington. Some evidence is beginning to point to other tick species possibly operating as vectors of the disease. Washington State Department of Health has received 7 to 18 reports of Lyme disease per year in recent years. Almost all Washington cases are the result of tick exposure out of state. Although little is known about the epidemiology of Lyme disease in Washington State, the risk of infection appears to be highest in counties around and west of the Cascade Mountains, reflecting the distribution of the local tick vector.

Lyme disease is the most commonly reported vector-borne disease in the United States with approximately 20,000 cases reported annually. Lyme disease has a wide distribution in northern temperate regions of the world. In the United States, the reported incidence is highest in the Northeast (particularly in southern New England); the upper Midwest; and in northern California.

Psittacosis is an infectious disease causing diarrhea, wasting, nasal discharge, and sometimes death in birds. It can be transmitted to humans and manifests itself as atypical pneumonia accompanied by a high fever. It has occasionally been brought into the County with migratory flocks or through birds imported by pet stores for sale to the general public.

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

Rabies has existed historically throughout Washington. In the early part of this century, rabies was considered a major problem appearing in epidemic proportions, not only in Washington, but also throughout the United States. In the United States, one to four human rabies deaths occur each year. World-wide, however, there are more than 50,000 human rabies deaths per year, most in developing countries. In Washington State, bats are the only documented reservoir for rabies, with over 20 captured bats testing positive in 2007. The Health Department reports approximately 10% of tested bats are carriers of the disease. Generally, bats do not attack people, although there are incidents where animals and people have been bitten without provocation or have bitten while they were sleeping. In other parts of the country, various other species, such as raccoons, coyotes, and skunks, are known rabies reservoirs.

Vulnerability/Exposure Routes:

Diseases which can cause epidemics in animals could gain a foothold in the State of Washington in a number of ways. Travelers could unknowingly be exposed to an animal disease in a foreign country and inadvertently carry it back to this country and expose animals here. Exotic diseases could be brought in with legally or illegally imported animals from some other part of the country or world. Another potential disease source includes infected animals traveling across the border from neighboring states or British Columbia. Avian diseases could be brought in by birds on their annual migration from Alaska and Canada, or from areas as far south as Mexico or South America. Contaminated garbage tossed overboard from a ship off the coast has also been identified as a potential source of disease when it washes on shore and is eaten by animals.

The recent increase in emerging infections is due, in part, to globalization of the economy, increased world travel ecological changes such as agricultural shifts, migration, urbanization, deforestation, or dam construction; and increased contact with animals due to development and travel. Globalization and increased travel place more people at risk for these diseases, as well as increase the spread and emergence of infectious diseases in the United States.

Animal epidemics are sometimes the result of newer mass animal husbandry practices that allow disease to spread rapidly among the animal population. Some diseases are the result of poor animal husbandry. It is thought that BSE spread from to cattle through the feeding of rendered animal parts to the cattle. Infected cattle were the source of vCJD in humans who ate meat from infected cattle. Since recent incidences of BSE, policy changes resulted in changes in animal feed to minimize future risk of infection. In addition, increasing knowledge of how diseases are spread result in policy changes to minimize the risk, for example, the US FDA instituted a ruminant feed ban in order to reduce the risk of BSE being transmitted to cattle and to humans

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

Catastrophic disease affecting animals is a threat within Washington State.

Mitigation Actions¹²

- The [National Veterinary Stockpile \(NVS\)](#) is the nation's repository of vaccines, personnel protective equipment, contractor support, and other critical veterinary supplies, equipment, and services for augmenting State and local resources in the fight against dangerous animal diseases. By 2011, it will acquire countermeasures against the first 10 of the 17 worst disease threats including Highly Pathogenic Avian Influenza, Foot-and-Mouth Disease, Rift Valley Fever, Exotic Newcastle Disease, and Classical Swine Fever and by 2016, it will acquire countermeasures against all 17 disease threats. Washington Administrative Codes (WAC 246-101-101 and WAC 246-101-405) detail public health responsibilities of veterinarians. All veterinarians are required to report certain conditions to their local health district and/or the Washington Department of Health. The list of diseases includes those which are of significant public health concern, such as anthrax, West Nile virus, plague, and rabies.

Certain diseases with zoonotic potential, eradicated animal diseases and suspected foreign animal diseases (Foot and Mouth Disease, Exotic Newcastle Disease) are also reportable to the Washington State Department of Agriculture (WSDA). For diseases reportable to both Public Health and the WSDA, veterinarians can make just one report, and the agencies will reciprocally share the report.

With the exception of pets, all animals entering Washington are required to have a certificate of health. For some species, tests or vaccinations are required. Dogs, cats and ferrets are required to have a current rabies certificate. However, there is limited control over companion animals entering from other states. Many people with pets move into Washington on a regular basis. This is especially true in areas that have military personnel transferring into or out of the area. In many instances, pet owners do not know that current rabies vaccination status is required to legally bring their pets into the State. The lack of entrance stations to enforce the certification regulations leaves our community open to the importation of diseased animals from other parts of the country. In addition, WSDA enforcement officers have occasionally caught dog and cat breeders attempting to bring in animals with forged health certificates. In March 2007, two puppies from India (not a canine rabies free country) were shipped to SeaTac Airport. One of the puppies stayed in Washington and the other was shipped to Alaska. A health certificate accompanied the puppy to Alaska and was certified by a veterinarian who stated "to the best of my knowledge the animal(s) have not been exposed to rabies or other communicable diseases and did not originate within a rabies quarantine area." Upon the death of the puppy in Washington and a positive rabies test, the second puppy was euthanized and also tested. Although the test was negative, it is likely the second puppy was in the incubation period and the virus could not be detected. As a result of this incident, eight people who may have had contact with the puppies, including airline, customs,

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

and veterinary clinic personnel were treated prophylactically against rabies.

A new threat to disease control in the animal population in the county is the popularity of exotic pets, such as potbellied pigs or unusual rodents. Potbellied pigs can become infected with many diseases that could infect not only other potbellied pigs, but also agricultural swine and in some cases humans. A monkey pox outbreak in 2003 in the Midwestern United States resulted in forty-seven confirmed and probable human monkey pox cases resulting from direct or indirect contact with infected prairie dogs. The outbreak was traced to rodents imported from Ghana and destined for the pet trade. These rodents spread the virus to a number of susceptible non-African species with which they were co-housed, including prairie dogs.

Mitigation Activities for Animal Epidemics:

Mitigation for animal epidemics focuses on prevention. First, by increasing compliance with the health and rabies certificate requirements for pets is an effective means of preventing the importation of diseased animals. While many animals entering Washington are required to have testing and vaccinations, many of their owners are unaware of the requirements. Since the public may be unaware that the State requires all animal bites to be reported to local public health, an educational program about the requirements relating to animal bites would be beneficial.

Interstate movement of animals is regulated by the U.S. Department of Agriculture Animal/Plant Inspection Services and the Washington Department of Agriculture Food Safety/Animal Health Division. Both agencies also cooperate in the detection, diagnosis and control of foreign animal disease, as well as cooperative disease eradication programs such as for Brucellosis, tuberculosis, pseudo rabies, salmonella in poultry, and scrapie in sheep. As such, primary mitigation measures are funneled through either or both of these agencies. Increased efforts are necessary to eliminate the illegal importation of exotic birds into the United States for sale in pet stores or to private owners. Proper quarantine and evaluation of all legally imported birds should be enforced prior to sale. Another possible action to identify animal disease early would be to make screening of backyard poultry flocks mandatory.

Enforcement of the State's requirements that all garbage from foreign ships be incinerated, or, in the case of food waste, "cooked" by licensed cooks before being used for animal food, will continue to help prevent the importation of diseases from foreign ports.

Vaccinating animals in an effort to prevent diseases within the local populations should be continued. Research into disease prevention should continue, as should enforcement of the sanitation laws related to animal husbandry.

Vulnerability

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

Certain diseases that cause animal outbreaks in other parts of the world are a potential threat to Washington State. These include such diseases as African Swine Fever, African Horse Sickness, Foot and Mouth Disease, and Anthrax. The concern about BSE and avian influenza demonstrate the potential severity of an epidemic on both livestock and humans. As previously mentioned, the frequency of emerging and re-emerging infections is increasing.

Part II: Human Epidemics¹³

Fifty years ago with antibiotics, vaccines, and improved hygiene, medical experts predicted the ability to control infectious diseases. Health experts now recognize that new infectious diseases have emerged and spread. Many modern demographic and environmental conditions, as well as the ability of microbes to evolve and adapt, favor these emerging diseases. Disparities such as poverty and inadequate access to health care give various socio-economic and ethnic groups different risks factors for infectious diseases, as is the case with tuberculosis and HIV infections, both more common among racial minorities, immigrants, and people of lower socioeconomic status.

A primary cause behind the spread of infectious diseases is poor sanitary conditions, for example, unsafe drinking water. Likewise, infectious diseases are more likely to occur among individuals who live in areas with higher population densities, amongst people who live in poverty, or where individuals have less access to health care. Within the United States, better hygiene and water quality improved the health of the general population during the first half of the 20th century. The availability of medical care and vaccines continued to lower the rates of infectious diseases. After World War II, antibiotics became available, enabling health care providers to treat many bacterial diseases. The development of vaccines assisted in the control of other diseases such as chickenpox, mumps, polio and measles. However, infectious diseases did not vanish as was hoped, but persisted while new strains of pathogens emerged. Antibiotic resistance has emerged and new infectious diseases have been identified.

In 1957 and 1968, new strains of influenza (flu) spread rapidly around the world. Although less severe than the 1918 flu strain which caused a worldwide outbreak, these strains still resulted in excess deaths. In the 1970s, Legionnaires' disease and Lyme disease were among new infections identified in the United States. During the 1980s, human immunodeficiency virus (the cause of Acquired Immune Deficiency Syndrome or AIDS) appeared. In the same years, tuberculosis (including strains harder to treat with antibiotics) increased in cities in this country. In the 1990s, Hantavirus emerged. Now U.S. public health agencies are planning for outbreaks of new diseases such as SARS (severe acute respiratory syndrome), which appeared in Asia, pandemic influenza, such as the most recent H1N1, and West Nile virus.

There are many causes behind the spread of these diseases, including personal choices such as lack of vaccination, poor hand hygiene, risky sexual practices, and shared needles by drug users. In addition, sick people who travel from country to

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

country can be a source of infection, as occurred in the SARS (Severe Acute Respiratory Syndrome) outbreak in Asia and Canada in 2003. World travel is another potential source for disease transmission. Another reason for disease outbreaks include normal evolution of bacteria and viruses, as well as antibiotic resistance that may occur in response to antibiotic usage.

Other factors contributing to the spread of disease include economic growth and land use, global trade and climate and weather changes such as global warming. Development of land in areas previously unpopulated by humans can bring humans and animals into closer proximity. Imported foods such as cantaloupe, mangos, and seeds for alfalfa sprouts have been linked to Salmonella outbreaks. Exotic or imported pets are another risk factor for emerging infections such as salmonellosis or monkey pox. Warmer-than-usual water and air can cause more bacterial growth in ocean waters which contaminate shellfish and can lead to an infectious outbreak. Climate changes allow mosquitoes to breed at higher elevations than in the past, spreading disease in new areas.

The impacts of an epidemic or pandemic can be severe. Depending on its severity, a human epidemic could result in death or debilitation, and economic hardship from lost work time, loss of productivity and these effects may cause more widespread harm to the economy. In addition, a serious epidemic or pandemic would likely cause a strain on current public health and medical resources statewide.

A number of diseases have had an effect on the population's health throughout the state. This portion of the Hazard Mitigation Plan will address a number of these; those most common and well known.

Hazard^{14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32}

Methicillin-resistant Staphylococcus aureus or MRSA is an infection caused by Staphylococcus aureus bacteria — often called "staph." That is resistant to the broad-spectrum antibiotics commonly used to treat it. MRSA can be fatal. The Mayo Clinic states that most MRSA infections occur in hospitals or other health care settings, such as nursing homes and dialysis centers, where it can attack those most vulnerable — older adults and people with weakened immune systems, burns, surgical wounds or serious underlying health problems. This is particularly true for hospital stays of more than 14 days. A 2007 report from the Association for Professionals in Infection Control and Epidemiology estimated that 46 out of every 1,000 people hospitalized are infected or colonized with MRSA. More recently, another type of MRSA has occurred among otherwise healthy people in the wider community. This form, community-associated MRSA, or CA-MRSA, is responsible for serious skin and soft tissue infections and for a serious form of pneumonia. MRSA has been transmitted in hospitals around the world for many years. In Washington, the first cases were discovered in the 1960s and there are increasing numbers of cases in our state. According to a recent study conducted at the request of Gov. Gregoire, MRSA infection has increased at least 20 fold between 2001 and 2006. Currently, there are limited

Hazard Profile - Public Health
Communicable Diseases - Human and Animal Based

guidelines in place for screening of patients as they enter hospitals or health care facilities,

West Nile Virus was first identified in the US in 1999. It can affect people, horses, certain types of birds, and other animals. In 1999, West Nile virus first appeared in the United States in New York City. Since that time, it has spread rapidly throughout the country. In Washington, the first cases of people becoming ill from West Nile virus were reported in 2006. It is a disease spread by mosquitoes to humans. Most people who are infected with West Nile virus will not get sick. About 1 in 5 people infected will have mild symptoms such as fever, headache, and body aches. Even fewer, about 1 in 150 people infected, will have more severe symptoms. Severe symptoms may include headache, high fever, neck stiffness, stupor, disorientation, tremors, convulsions, muscle weakness, paralysis, and coma. According to the Washington State Department of Health, the breakdown of human cases of this mosquito-transmitted disease which have reached Washington, broken down by county is as follows:

**Hazard Profile - Public Health
Communicable Diseases - Human and Animal Based**

West Nile Virus-Positive Cases in Washington, 2009				
County	Human	Horse/ Other Mammal	Bird	Mosquito Sample
Adams	0	2	0	3
Benton	9	23	7	128
Franklin	0	3	2	45
Grant	1	11	0	10
Grays Harbor	0	0	1	0
King*	1	0	2	0
Kittitas	0	16	2	2
Klickitat	2	0	0	3
Lewis	0	0	1	0
Mason	0	0	1	0
Pierce	0	0	1	0
Spokane*	2	0	1	0
Walla Walla	0	0	4	1
Whatcom*	1	0	0	0
Whitman	1	0	0	0
Yakima	21	18	0	154
Total	38	73	22	346

*Information from Washington State Department of Health, May 2010. Available at: <http://www.doh.wa.gov/ehp/ts/Zoo/WNV/Surveillance09.html>

Influenza is a common respiratory infection that is usually mild but can cause serious illness and death. The types of influenza viruses in circulation change frequently, so new vaccines are needed most years. In addition, a large genetic change in the influenza virus can occur and result in a pandemic.. A pandemic of influenza occurs when a new flu virus rapidly spreads from country to country around the world. The swift spread of a pandemic flu happens because people are not immune to the new flu virus. An effective vaccine takes many months to develop. According to the Washington State Department of Health, a severe pandemic influenza could cause over 200,000 deaths in our country, with as many as 5,000 fatalities in Washington. Our state could also expect 10,000-24,000 people needing hospital stays and 480,000-1,119,000 people requiring outpatient visits.

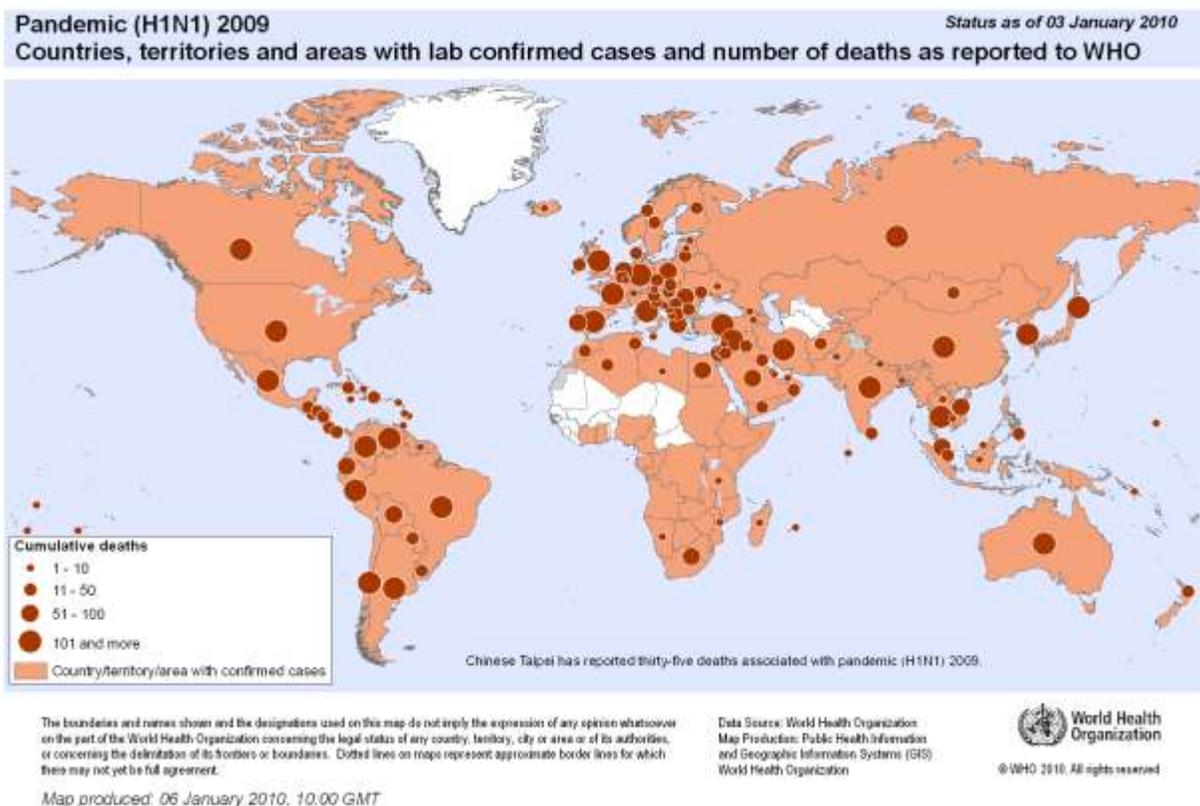
2009 H1N1influenza - “2009 H1N1 influenza A is a new flu virus of swine origin that first caused illness in Mexico and the United States in March and April, 2009. 2009 H1N1 influenza A spreads in the same way that regular seasonal influenza viruses spread, mainly through the coughs and sneezes of people who are sick with the virus, but it may also be spread by touching infected objects and then

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

touching your nose or mouth. Novel H1N1 infection cause a wide range of flu-like symptoms, including fever, cough, sore throat, body aches, headache, chills and fatigue. In addition, many people also have reported nausea, vomiting and/or diarrhea.

From the time the novel H1N1 virus was identified in April, 2009, it spread rapidly around the world, and was declare a pandemic by WHO in June, 2009. Epidemiological studies determined that the virus caused more disease overall and more hospitalizations and deaths in younger persons than seasonal flu. While nationwide U.S. influenza surveillance systems indicate that overall influenza activity is low in the country at this time, novel H1N1 outbreaks are ongoing in parts of the U.S.

Nations with Confirmed Cases of the A/H1N1 Swine Flu Virus as Reported in January 2010



Nations with Confirmed Cases of the A/H1N1 Swine Flu Virus ³³

Hazard Profile - Public Health **Communicable Diseases - Human and Animal Based**

Severe Acute Respiratory Syndrome (SARS) is a viral respiratory illness caused by a corona virus, called SARS-associated corona virus (SARS-CoV). SARS was first reported in Asia in February 2003. Over the next few months, the illness spread to more than two dozen countries in North America, South America, Europe, and Asia before the SARS global outbreak of 2003 was contained. According to the World Health Organization (WHO), a total of 8,098 people worldwide became sick with SARS during the 2003 outbreak. Of these, 774 died. In the United States, only eight people had laboratory evidence of SARS infection. All of these people had traveled to other parts of the world with SARS. SARS did not spread more widely in the community in the United States. The main way that SARS seems to spread is by close person-to-person contact. The virus that causes SARS is thought to be transmitted most readily by respiratory droplets (droplet spread) produced when an infected person coughs or sneezes. Droplet spread can happen when droplets from the cough or sneeze of an infected person are propelled a short distance (generally up to 3 feet) through the air and deposited on the mucous membranes of the mouth, nose, or eyes of persons who are nearby. The virus also can spread when a person touches a surface or object contaminated with infectious droplets and then touches his or her mouth, nose, or eye(s). In addition, it is possible that the SARS virus might spread more broadly through the air (airborne spread) or by other ways that are not now known.

Measles is a highly communicable viral rash illness that was a major childhood disease in the pre-vaccine era. Although the disease is now considered rare in Washington and the United States due to routine childhood immunization, sporadic cases of measles and outbreaks continue to occur and challenge public health organizations. The death rate for measles in the United States is 1–2 deaths per 1000 cases. Measles is one of the most highly contagious infections among humans. The virus is spread from one person to another through respiratory secretions. Exposure most commonly occurs through airborne transmission or direct contact with moist respiratory secretions. A person with measles is contagious from four or five days before the rash starts to four days afterwards. The incubation period of measles from exposure to rash onset is generally 14 days (range 7–21).

Hepatitis – Hepatitis A, B and C are viral infections that cause inflammation of the liver. Hepatitis A is usually transmitted by eating food prepared by or close contact with someone who is infected. It is usually a self limited illness and infected persons recover fully and are immune. Hepatitis B and C are primarily transmitted through blood exposures. Hepatitis B can also be transmitted from mother to infant at birth. Hepatitis A and B can be prevented by vaccination. Hepatitis B and C can become chronic infections and cause cirrhosis and liver failure; chronic carriers can infect others. Infections from acute hepatitis A, hepatitis B, and hepatitis C have decreased considerably over the past 15 years. Rates of new infections of hepatitis A and hepatitis B have dropped primarily because people can be immunized against those diseases.

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

Tuberculosis (TB) is bacterial infection, primarily of the lungs but can infect many parts of the body. Tuberculosis is transmitted from person to person. When a person with pulmonary or laryngeal tuberculosis coughs or sneezes, droplets containing *Mycobacterium tuberculosis* (*M. tuberculosis*) are expelled into the air and can be inhaled by another person causing the disease to spread. From the early 1940s until the mid-1980s, tuberculosis cases steadily decreased in Washington, paralleling the national trend. Better living conditions, reduced crowding, improved nutritional status, and the introduction of effective chemotherapy contributed to these declines. But from 1984 until 1991, the number of tuberculosis cases increased by 49%, primarily because of increases in immigration from areas of endemic tuberculosis, erosion of the public health infrastructure for ensuring treatment and control, and to a lesser extent, the HIV epidemic. In Washington, the impact of HIV on tuberculosis has been significantly less than in other parts of the country. During 2004–2006, only about 5% of tuberculosis cases occurred in people with HIV infection.

Many people, once they become symptomatic, will continue to infect others until they themselves are located and given treatment. Treatment may fail if people do not take their medication regularly. To counter this, many health departments have initiated a program of aggressive follow up to make sure that individuals complete a full course of their treatment. Without these preventative measures we could in the future see a dramatic increase in the disease rate. In 2006, Washington State reported 262 cases of tuberculosis. The crude incidence rate was 4.1 cases per 100,000. This rate was slightly less than the national rate of 4.6 per 100,000. Washington ranks 20th in the United States in incidences of tuberculosis. Seventy-three percent of the 2006 tuberculosis cases in Washington were among foreign-born people from countries with high rates of tuberculosis.

E-Coli are bacteria that normally live in the intestines of humans and animals. Although most strains are harmless, several are known to produce toxins that can cause diarrhea. Certain strains can cause severe diarrhea and kidney damage. Anyone of any age can become infected, but the very young and the elderly are more likely to develop serious complications. Certain strains of E-Coli (*E. coli* O157:H7) can be acquired by eating contaminated food. The bacteria live in the intestines of some healthy cattle and contamination of the meat may occur in the slaughtering process. Eating meat that is rare or inadequately cooked is the most common way of getting the infection. Fresh vegetables, unpasteurized fruit juices and raw milk have also caused outbreaks. With careless food handling any food product eaten raw can be contaminated by raw meat juices. Person-to-person transmission, especially in child care settings, can occur if infected people do not wash their hands after using the toilet or diapering children. Drinking contaminated water and swimming in contaminated shallow lakes may also cause infection.

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

ENTEROHEMORRHAGIC <i>E. COLI</i> Cases, Rate/100,000 Population											ENTEROHEMORRHAGIC <i>E. COLI</i> STATEWIDE BY YEAR Cases, Rate/100,000 Pop., Deaths			
Counties	2003		2004		2005		2006		2007		Year	Cases	Rate	Deaths
	Cases	Rate												
Adams	0	0.0	0	0.0	0	0.0	0	0.0	1	*	1988	167	3.7	0
Asotin	0	0.0	0	0.0	1	*	1	*	1	*	1989	157	3.4	1
Benton	4	*	9	5.8	3	*	3	*	2	*	1990	220	4.5	0
Chelan	0	0.0	0	0.0	1	*	5	7.1	0	0.0	1991	164	3.3	0
Clallam	0	0.0	0	0.0	1	*	0	0.0	1	*	1992	300	5.9	2
Clark	13	3.5	21	5.5	30	7.7	14	3.5	9	2.2	1993	741	14.1	3
Columbia	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1994	174	3.3	2
Cowlitz	2	*	0	0.0	7	7.3	2	*	3	*	1995	140	2.6	1
Douglas	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1996	187	3.4	1
Ferry	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1997	149	2.7	0
Franklin	2	*	2	*	2	*	1	*	1	*	1998	144	2.5	0
Garfield	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1999	186	3.2	0
Grant	2	*	0	0.0	0	0.0	5	6.2	0	0.0	2000	237	4.0	0
Grays Harbor	1	*	2	*	2	*	0	0.0	0	0.0	2001	150	2.5	0
Island	0	0.0	0	0.0	2	*	1	*	1	*	2002	166	2.7	0
Jefferson	1	*	0	0.0	0	0.0	0	0.0	0	0.0	2003	128	2.1	0
King	40	2.2	43	2.4	43	2.4	45	2.5	44	2.4	2004	153	2.5	3
Kitsap	3	*	4	*	9	3.7	7	2.9	6	2.5	2005	149	2.4	0
Kittitas	2	*	0	0.0	1	*	0	0.0	0	0.0	2006	162	2.5	0
Klickitat	0	0.0	0	0.0	1	*	0	0.0	3	*	2007	141	2.2	0
Lewis	2	*	0	0.0	1	*	4	*	0	0.0				
Lincoln	1	*	0	0.0	0	0.0	1	*	0	0.0				
Mason	0	0.0	0	0.0	1	*	0	0.0	0	0.0				
Okanogan	1	*	0	0.0	0	0.0	0	0.0	2	*				
Pacific	2	*	2	*	0	0.0	0	0.0	0	0.0				
Pend Oreille	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0				
Pierce	6	0.8	28	3.8	6	0.8	22	2.8	14	1.8				
San Juan	1	*	0	0.0	0	0.0	1	*	0	0.0				
Skagit	5	4.7	1	*	2	*	1	*	5	4.3				
Skamania	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0				
Snohomish	12	1.9	20	3.1	17	2.6	17	2.5	19	2.8				
Spokane	10	2.3	2	*	3	*	9	2.0	3	*				
Stevens	1	*	0	0.0	0	0.0	0	0.0	1	*				
Thurston	7	3.3	6	2.7	4	*	6	2.6	8	3.4				
Wahkiakum	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0				
Walla Walla	2	*	0	0.0	0	0.0	0	0.0	1	*				
Whatcom	4	*	5	2.8	9	5.0	10	5.4	11	5.8				
Whitman	0	0.0	5	12.0	0	0.0	2	*	0	0.0				
Yakima	4	*	3	*	3	*	5	2.2	5	2.1				
STATEWIDE TOTAL														
CASES	128	2.1	153	2.5	149	2.4	162	2.5	141	2.2				

* Incidence rates not calculated for < 5 cases.

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

Lyme Disease is caused by *Borrelia burgdorferii* and is transmitted to humans by tick bites. The first reported case in Washington was in 1987. DOH has received 7 to 18 reports of Lyme disease per year in recent years. Although little is known about the epidemiology of Lyme disease in Washington State, the risk of infection appears to be highest in counties around and west of the Cascade Mountains, reflecting the distribution of the local *Ixodes pacificus* tick vector. Lyme disease is the most commonly reported vector-borne disease in the United States with approximately 20,000 cases reported annually. Lyme disease has a wide distribution in northern temperate regions of the world. In the United States, the reported incidence is highest in the Northeast (particularly in southern New England); the upper Midwest; and in northern California.

Hantavirus Pulmonary Syndrome (HPS) causes a rapidly progressive and severe pneumonia that is often fatal. Since the disease's recognition in 1993 through October 2007, there have been 34 reported cases of HPS in Washington State with 11 (32%) associated deaths. Between 1 and 5 cases occur annually with a geographic distribution throughout the state. The median age of cases in Washington State is 36 years (range 19–75 years). The death rate and median age of cases in Washington are similar to the national rates.

The deer mouse (*Peromyscus maniculatus*) is the main carrier of Hantavirus in the western United States;. Deer mice live in all parts of Washington, but mainly in rural areas. Deer mice pass the virus to each other and some of the population is usually infected. The deer mouse can carry and shed the virus without showing any signs of being sick. In Washington, about 14% of over 1,100 tested deer mice have been infected with *Sin Nombre* virus. Exposure occurs by deer mice excreting the virus in their urine, saliva, and droppings. A person may be exposed to Hantavirus by breathing contaminated dust after disturbing or cleaning rodent droppings or nests, or by living or working in rodent-infested settings. In North America, there is no evidence that the disease spreads from one person to another. HPS symptoms begin one to six weeks after inhaling the virus in contaminated dust. The disease begins with 2-6 days of "flu-like" illness including fever, sore muscles, headaches, nausea, vomiting, and fatigue. As the disease gets worse, it causes shortness of breath due to fluid filled lungs and hospital care is then required. It is usually a serious infection and about 1 out of 3 people diagnosed with HPS have died.

HIV/AIDS – HIV/AIDS is a viral infection that causes a severe and progressive immune system dysfunction. At least 11,000 people live with HIV/AIDS in Washington, 64% of who reside in King County. In 2005, there were 575 newly diagnosed cases of HIV infection in Washington. The HIV/AIDS epidemic has been stable here in recent years. Groups such as black people, people of Hispanic origin, and American Indians and Alaska Natives continue to have rates of HIV/AIDS diagnosis that are higher than those of non-Hispanic whites. These disparities have not changed since 2001. Most HIV/AIDS cases (72%) are among men who have sex with men. HIV diagnoses have increased in adults

Hazard Profile - Public Health **Communicable Diseases - Human and Animal Based**

ages 40 and older. As people with HIV/AIDS continue to live longer, the number living with the disease has increased 5% per year. The first case of acquired immune deficiency syndrome (AIDS) in Washington was reported in 1982. Consistent with national trends, AIDS cases increased rapidly in the 1980s, peaking in 1993. AIDS incidence then dropped in the mid-1990s before stabilizing in 1998. In 2005, the AIDS incidence rate among Washington residents was 6.6 cases per 100,000 residents, less than half the national rate of 15 cases per 100,000.

Leptospirosis. Leptospirosis is a bacterial infectious disease occurring in both human beings and domestic animals, affecting the kidneys and liver. It may be among the world's most common diseases spread from animals to humans. Although it is common in tropical countries and regions such as Hawaii, sporadic leptospirosis outbreaks are not unusual in temperate regions such as Washington. These bacteria may be associated with animal hosts, but also survive in fresh water, soil, and mud. During 2007, the Washington State Department of Health (DOH) received reports of five human cases of leptospirosis. Cases were reported from Clallam, Clark, Pierce, and Thurston counties; all patients were male and ages ranged from 26 to 59 years. All were hospitalized and none died from the illness. All five infections had confirmatory testing performed at the CDC. While none of the cases had a shared exposure, they all apparently were exposed through direct contact with infected animals or natural water sources within Washington State. Leptospirosis is rare in Washington, with 0 to five cases reported each year. No cases were reported from 1987 through 1995. Of leptospirosis cases reported between 1996 and 2004, only four cases (44 %) reported exposure in Washington State. However, between 2005 and 2007, 8 cases (80 %) were exposed in Washington.

Mitigation Activities:

The US Department of Health and Human Services', Centers for Disease Control and Prevention (CDC), Division of Strategic [National Stockpile \(SNS\)](#) staff operates the nation's repository of medical resources, equipment, and services for augmenting within 12-hours State and local resources in the fight against dangerous diseases, chemicals, or other hazards. The SNS is organized for flexible response and is able to deliver medical materiel quickly by using several different concepts:

- **12-Hour Push Packages:** The first line of support lies within the immediate response 12-hour Push Packages. These are caches of pharmaceuticals, antidotes, and medical supplies designed to provide rapid delivery of a broad spectrum of assets for an ill defined threat in the early hours of an event. These Push Packages are positioned in strategically located, secure warehouses ready for immediate deployment to a designated site within 12 hours of the federal decision to deploy SNS assets.
- **Managed Inventory:** If the incident requires additional pharmaceuticals and/or medical supplies, follow-on managed inventory (MI) will be shipped to arrive within 24 to 36 hours. If the agent is well defined, MI can be tailored to

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

- provide pharmaceuticals, supplies and/or products specific to the suspected or confirmed agent(s).
- Rapid Purchasing Power: through contracts with the Veterans Administration, CDC is able to rapidly procure additional materials during an emergency that are not typically part of the SNS formulary.
 - The state has a formal plan within the CEMP, ESF 8, to request and take delivery of SNS resources and distribute them onto local jurisdictions.

A safe water supply, good hygiene, effective sewage and waste disposal, aggressive monitoring, public education, prevention and treatment of potential disease outbreaks by public health officials are the primary mitigation efforts for potential pandemic/epidemic outbreaks. Actions such as frequent hand washings, covering one's mouth when they cough, and staying home when ill have an enormous impact on maintaining control of an infectious disease by limiting the germs which can be spread if these actions are not followed.

Basic mitigation measures also include: childhood and adult immunization programs; health education in the schools and on a community level to address disease transmission and prevention; targeting the mechanism of transmission [diseases, such as drug usage for diseases like HIV infection and Hepatitis B; maintaining strict health standards for food service employees and eating establishments; maintaining strict health standards for food products; and utilizing accepted and recommended infection control practices in medical facilities. The community education programs should be targeted in particular toward high risk groups for blood born pathogens and sexually transmitted diseases. Both active and passive surveillance methods are useful

Washington State is not immune to epidemics. Some, such as the flu, are yearly occurrences. Others are either much more unpredictable, such as measles. Our region has a high probability for a major earthquake to occur. The potential for an epidemic would increase dramatically in the event of a major disaster, such as an earthquake, as sanitation – an extremely important element for mitigation efforts - could be severely impacted. The effects of disease on the population within Washington have been minor when compared to other states, but the potential for large epidemics continues to exist. Disease may reach a larger population due to the absence or breakdown of normal intervening factors. Greater awareness of potential hazards impacting our state should bring a clearer understanding as to why mitigation actions are necessary.

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

Table 1: Diseases Associated with Multiple Species:

Disease	Status	Date of Last Occurrence / Notes
Anthrax	Present	Sporadic / limited distribution
Aujeszky's disease	Present	Sporadic (feral transitional only) / limited distribution/national eradication program
Bluetongue	Present	Sporadic / limited distribution
Brucellosis (Brucella abortus)	Present	Sporadic / limited distribution, primarily limited to wildlife in certain limited areas (Greater Yellowstone National Park Area) / national eradication program
Brucellosis (Brucella melitensis)	Free	1999
Brucellosis (Brucella suis)	Present	Sporadic (feral-transitional only) / limited distribution / national eradication program
Crimean Congo haemorrhagic fever	Free	Never occurred
Echinococcosis/hydatidosis	?	Sporadic (uncommon in all species) / no detections reported in 2008
Foot-and-mouth disease	Free	1929
Heartwater	Free	Never occurred
Japanese encephalitis	Free	Never occurred
Leptospirosis	Present	
New world screwworm	Free	1982 / animal health officials responded to an imported case in a canine in 2007
Old world screwworm	Free	Never occurred / animal health officials responded to an imported case in a canine in 2007
Paratuberculosis (Johne's Disease)	Present	National control program
Q fever	Present	Sporadic
Rabies	Present	
Rift Valley fever	Free	Never occurred
Rinderpest	Free	Never occurred

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

Trichinellosis	?	Sporadic (feral, wild animals) / limited distribution / national control program/ no detections reported in 2008
Tularemia	Present	Sporadic (primarily wild animals)/limited distribution
Vesicular stomatitis	Absent During Reporting Period	last detection in 2006
West Nile fever/encephalitis	Present	Equine-6 cases in four States and PR (as of July 9, 2008)

Cattle Diseases

Disease	Status	Date of Last Occurrence / Notes
Bovine anaplasmosis	Present	
Bovine babesiosis	Free	Limited distribution (endemic in territories of Puerto Rico and the U.S. Virgin Islands; last occurrence on the U.S. mainland was in 1943)
Bovine genital campylobacteriosis	?	Sporadic / limited distribution / no detections reported in 2008
Bovine spongiform encephalopathy	Controlled risk	Last detection in 2006
Bovine tuberculosis	Present	Sporadic/limited distribution/national eradication program
Bovine viral diarrhea	Present	
Contagious bovine pleuropneumonia	Free	1892
Enzootic bovine leukosis	Present	
Haemorrhagic septicaemia	?	Sporadic / limited distribution (bison) / no detections reported in 2008
Infectious bovine rhinotracheitis/ infectious pustular vulvovaginitis	Present	
Lumpy skin diseases	Free	Never occurred
Malignant catarrhal fever (Wildebeest only)	Present	One event April 2008 in multifaceted cattle producing ranch (OIE Immediate Report)
Theileriosis	Free	Never occurred
Trichomonosis	Present	
Trypanosomosis	Free	Never occurred

Sheep and Goat Diseases

Disease	Status	Date of Last Occurrence / Notes
Caprine arthritis / encephalitis	Present	
Contagious agalactia	Present	Sporadic (non Mediterranean form) / limited distribution
Contagious caprine pleuropneumonia	Free	Never occurred
Enzootic abortion of ewes (ovine chlamydiosis)	Present	Sporadic/limited distribution
Maedi-visna	Present	Sporadic/limited distribution
Nairobi sheep diseases	Free	Never occurred
Ovine epididymitis (<i>Brucella ovis</i>)	Present	Sporadic/limited distribution
Peste des petits ruminants	Free	Never occurred
Salmonellosis (<i>S. abortusovis</i>)	Present	Sporadic / limited distribution / no detections reported in 2008

Hazard Profile - Public Health

Communicable Diseases - Human and Animal Based

Scrapie	Present	National eradication program
Sheep pox and goat pox	Free	Never occurred

Equine Diseases

Disease	Status	Date of Last Occurrence / Notes
African horse sickness	Free	Never occurred
Contagious equine metritis	Free	2006-import associated
Dourine	Free	1934
Equine encephalomyelitis (Eastern)	Present	Sporadic / limited distribution / Equine cases: 63 cases in three States (as of July 9, 2008)
Equine encephalomyelitis (Western)	?	Sporadic / limited distribution / no detections in 2008
Equine infectious anemia	Present	Sporadic / limited distribution / national control program
Equine influenza	Present	Sporadic / limited distribution
Equine piroplasmiasis	Absent During Reporting Period	Limited distribution (limited to Puerto Rico and U.S. Virgin Islands, last occurrence on U.S. mainland was 1978)
Equine rhinopneumonitis	Present	Sporadic / limited distribution
Equine viral arteritis	Present	Sporadic / limited distribution
Glanders	Free	1942
Surra (<i>Trypanosoma evansi</i>)	Free	Never occurred
Venezuelan equine encephalomyelitis	Free	1971

Swine Diseases

Disease	Status	Date of Last Occurrence / Notes
African swine fever	Free	Never occurred
Classical swine fever (hog cholera)	Free	1976
Nipah virus encephalitis	Free	Never occurred
Porcine cysticercosis	Absent During Reporting Period	2004
Porcine reproductive and respiratory syndrome	Present	
Swine vesicular disease	Free	Never occurred
Transmissible gastroenteritis	Present	

Avian Diseases

Disease	Status	Date of Last Occurrence / Notes
Avian chlamydiosis	Present	Sporadic (wild birds, pet birds, backyard)/limited distribution
Avian infectious bronchitis	Present	
Avian infectious laryngotracheitis	Present	Sporadic (primarily vaccine-related)/limited distribution
Avian mycoplasmosis (<i>M. gallisepticum</i>)	Present	Sporadic/limited distribution/All commercial poultry breeding flocks are under a surveillance program to confirm infection-free status. Commercial table-egg laying may be vaccinated.
Avian mycoplasmosis (<i>M. synoviae</i>)	Present	Sporadic/limited distribution/All commercial poultry breeding flocks are under a surveillance program to confirm infection-free status. Commercial table-egg laying may be vaccinated.
Duck viral hepatitis	Free	1998
Fowl cholera (<i>Pasteurella multocida</i>)	Present	
Fowl typhoid (<i>Salmonella gallinarum</i>)	Free	1981
Highly pathogenic avian influenza	Free	2004
Low pathogenic avian influenza (poultry)	Identification of the presence of infection/infestation	One non clinical event June 2008, H7N3, identified on routine pre-slaughter

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

		surveillance as part of the National Poultry Improvement Plan (NPIP) Avian Influenza Clean Program (OIE Immediate Report)
Infectious bursal disease (Gumboro disease)	Present	Sporadic/limited distribution
Marek's disease	Present	
Newcastle disease (Neurotropic and viscerotropic strains)	Free	2003
Pullorum disease (<i>Salmonella pullorum</i>)	?	Sporadic / limited distribution (commercial production flocks are free; disease may occur in some backyard poultry) / no detections reported in 2008
Turkey rhinotracheitis	Present	Sporadic / limited distribution

Lagomorph Diseases

Disease	Status	Date of Last Occurrence / Notes
Myxomatosis	?	No detections reported in 2008
Rabbit hemorrhagic disease	Present	One event February 2008 in a non commercial, pet related incident (OIE Immediate Report)

Bee Diseases

Disease	Status	Date of Last Occurrence / Notes
Acarapisosis of honey bees	Present	Sporadic/limited distribution
American foulbrood of honey bees	Present	
European foulbrood of honey bees	Present	
Small hive beetle infestation (<i>Aethina tumida</i>)	Present	Sporadic/limited distribution
Tropilaelaps infestation of honey bees	Free	Never occurred
Varroosis of honey bees	Present	

Other Listed Diseases

Disease	Status	Date of Last Occurrence / Notes
Leishmaniosis	?	No detections reported in 2008
Camelpox	Free	Never occurred

Aquaculture Diseases - Fish

Disease	Status	Date of Last Occurrence / Notes
Epizootic hematopoietic necrosis	Free	Never occurred
Epizootic ulcerative syndrome	Free	2004 (wild species)
Gyrodactylosis (<i>Gyrodactylus salaricus</i>)	Free	Never occurred
Infectious hematopoietic necrosis	Present	Sporadic / limited distribution
Infectious salmon anemia	Free	2006
Koi herpesvirus disease	Present	
Red sea bream iridoviral disease	Free	Never occurred
Spring viremia of carp	Identification of the presence of infection/infestation	Confirmed infection (wild species), no clinical disease
Viral hemorrhagic septicaemia	Present	Sporadic (wild species) / limited distribution

Aquaculture Diseases - Molluscs

Disease	Status	Date of Last Occurrence / Notes
Abalone viral mortality	Free	Never occurred
Infection with <i>Bonamia exitiosus</i>	Free	Never occurred
Infection with <i>Bonamia ostreae</i>	Free	2006
Infection with <i>Marteilia refringens</i>	Free	Never occurred

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

Infection with <i>Mikrocytos roughleyi</i>	Free	Never occurred
Infection with <i>Perkinsus marinus</i>	Present	Sporadic (wild species) / limited distribution
Infection with <i>Perkinsus olseni</i>	Identification of the presence of infection/infestation	Confirmed infection, no clinical disease
Infection with <i>Xenohaliotis californiensis</i>	Free	2006
Aquaculture Diseases - Crustaceans		
Disease	Status	Date of Last Occurrence / Notes
Crayfish plague (<i>Aphanomyces astaci</i>)	Free	
Infectious hypodermal and haematopoietic necrosis	Free	
Infectious myonecrosis	Free	Never occurred
Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	Free	Never occurred
Taura syndrome	Absent During Reporting Period	2007 HI routine surveillance detected one non-clinical event
Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	Free	2006
White spot disease	Present	Sporadic / limited distribution / one event detected June 2008 in Whiteleg shrimp (<i>Litopenaeus vannamei</i>) shrimp farm located on Kauai, Hawaii (OIE Immediate Report)
White tail disease	Free	Never occurred
Yellowhead disease	Absent During Reporting Period	No detections reported in 2008

Source: (USDA Animal Health Monitoring and Surveillance. Status of Reportable Diseases in the United States Available at: http://www.aphis.usda.gov/vs/nahss/disease_status.htm#cattle

Sporadic = occurring only occasionally

Limited distribution = limited geographic distribution

? = presence of the diseases suspected but not confirmed

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

BIBLIOGRAPHY

- ¹ Washington State Department of Health. *Pandemics*. 2008. Accessed 17 Nov. 2008. Available at: <http://www.doh.wa.gov/panflu/qna.htm>
- ² Washington State Department of Agriculture. *Avian Health*. 2008. Accessed 17 Nov. 2008.
- ³ U.S. Department of Agriculture: Power Point Presentation - *17 Most Dangerous Animal Threats*. 2008. Accessed 17 Nov. 2008. Available at: http://www.aphis.usda.gov/animal_health/vet_biologics/publications/Public%20Meeting%202008/Elsken,%20National%20Veterinary%20Stockpile.pdf
- ⁴ Washington State Department of Agriculture. *Exotic Newcastle Disease*. 2008. Accessed 17 Nov. 2008. Available at: <http://www.agr.wa.gov/FoodAnimal/AvianHealth/Docs/ExoticNewcastleDisease-website.pdf>
- ⁵ Washington State Department of Agriculture. *Avian Influenza*. Accessed 18 Nov. 2008. <http://www.agr.wa.gov/FoodAnimal/AvianHealth/Docs/AvianInfluenza-website.pdf>
- ⁶ MayoClinic.com. *Mad Cow Disease and Its Effects on Humans*. Accessed 17 Nov. 2008.
- ⁷ United States Department of Agriculture: Animal and Plant Health Inspection Service. *Animal Health Monitoring & Surveillance*. June 2008. Accessed 17 Nov. 2008. Available at: http://www.aphis.usda.gov/vs/nahss/disease_status.htm#cattle
- ⁸ U.S. Department of Agriculture. Press Release dated Oct. 2006. Accessed 19 Nov. 2008.
- ⁹ Washington State Department of Agriculture Agency-Request Legislation – 2007 Session ESB 5204: AN ACT Relating to Animal Health Enforcement . Accessed 19 Nov. 2008. Available at: <http://agr.wa.gov/AboutWSDA/docs/Ext-AnimalHealthEnforcement4-07.pdf>
- ¹⁰ Washington State Department of Agriculture. *Newcastle Disease Avian Paramyxovirus-Infection, Goose Paramyxovirus Infection* 2008. Accessed 19 Nov. 2008.
- ¹¹ Washington State Department of Health. *Notifiable Conditions: Lyme Disease*. 2008. Accessed 19 Nov. 2008. Available at: <http://www.doh.wa.gov/Notify/nc/lyme.htm>
- ¹² United States Department of Agriculture: Animal and Plant Health Inspection Service. *National Center for Animal Health Emergency Management*. 2008. Accessed 17 Nov. 2008. Available at: http://www.aphis.usda.gov/animal_health/emergency_management/
- ¹³ Centers for Disease Control and Prevention. (2005). *Racial Disparities in Nationally Notifiable Conditions – 2002. Morbidity and Mortality Weekly Report*, 54, 9-11.
- ¹⁴ Information concerning a Pandemic and its effects was gathered from the Washington State Department of Health. Accessed 17 Nov. 2008. Available at: <http://www.doh.wa.gov/panflu/plansummary.htm>
- ¹⁵ National AIDS incidence rates are based on surveillance data provided by CDC via personal correspondence to the Washington State Department of Health on January 18, 2007.
- ¹⁶ *Information from Washington State Department of Health, November 2008. Available at: <http://www.doh.wa.gov/ehp/ts/Zoo/WNV/Surveillance08.html#Statistics>
- ¹⁷ Washington State Department of Health. *The Health of Washington State: Hepatitis*. Oct. 2007. Accessed on 18 Nov. 2008.

Hazard Profile - Public Health Communicable Diseases - Human and Animal Based

- ¹⁸ Washington State Department of Health. *The Health of Washington State, 2007: Tuberculosis*. Oct. 2007. Accessed 18 Nov. 2008.
- ¹⁹ Heymann, D. (2005). Social, behavioral and environmental factors and their impact on infectious disease outbreaks. *Journal of Public Health Policy*, 26, 133-139. Accessed 18 Nov. 08. Available at: <http://www.palgrave-journals.com/jphp/journal/v26/n1/pdf/3200004a.pdf>
- ²⁰ Washington State Department of Health. *epiTRENDS: A Monthly Bulletin on Communicable Disease Epidemiology and Public Health Practice in Washington State*. Vol. 13 No. 9. Sept. 2008. Accessed 18 Nov. 2008. Available at: <http://www.doh.wa.gov/EHSPHL/epitrends/08-epitrends/08-09-epitrends.pdf>
- ²¹ Washington State Department of Health. *epiTRENDS: A Monthly Bulletin on Communicable Disease Epidemiology and Public Health Practice in Washington State. Measles in Washington State*. Vol. 13 No. 9. May 2008. Accessed 18 Nov. 2008. Available at: <http://www.doh.wa.gov/EHSPHL/epitrends/08-epitrends/08-05-epitrends.pdf>
- ²² Washington State Department of Health. *epiTRENDS: A Monthly Bulletin on Communicable Disease Epidemiology and Public Health Practice in Washington State. Leptospirosis Reported in Washington State*. Vol. 13. No. 2. Feb. 2008. Accessed on 18 Nov. 2008. Available at: <http://www.doh.wa.gov/EHSPHL/epitrends/08-epitrends/08-02-epitrends.pdf>
- ²³ Washington State Department of Health. *Fact Sheet: Hantavirus*. Feb. 2008. Accessed 18 Nov. 2008. Available at: <http://www.doh.wa.gov/EHSPHL/factsheet/hanta.htm>
- ²⁴ Washington State Department of Health. *Notifiable Conditions. Hantavirus*. Aug. 2008. Accessed 18 Nov. 2008. Available at: <http://www.doh.wa.gov/notify/nc/hantavirus.htm>
- ²⁵ Washington State Department of Health. *Notifiable Conditions. Lyme Disease*. Aug. 2008. Accessed 18 Nov. 2008. Available at: <http://www.doh.wa.gov/notify/nc/lyme.htm>
- ²⁶ Mayo Clinic. *Marsa*. 2008. Accessed 19 Nov. 2008. Available at: <http://www.mayoclinic.com/health/mrsa/DS00735>
- ²⁷ Washington State Department of Health. *Evidence-Based Monitoring Strategies and Interventions for Antibiotic Resistant Organisms*. 2008.
- ²⁸ Washington State Department of Health. *E-Coli Fact Sheet*. 2008. Accessed 19 Nov. 2008. Available at: <http://www.doh.wa.gov/ehsphl/factsheet/ecoli.pdf>
- ²⁹ Department of Health and Human Services. Centers for Disease Control and Prevention. *Severe acute respiratory syndrome (SARS)*. 2005. Accessed 19 Nov. 2008. Available at: <http://www.cdc.gov/ncidod/sars/factsheet.htm>
- ³⁰ U.S. Dept. of Health and Human Services, n.d. "The Great Pandemic – The United States in 1918-1919: Washington State," *1918 Pandemic Flu*. Accessed: 12 Nov. 2008. Available at: http://1918.pandemicflu.gov/your_state/washington.htm
- ³¹ *Global Security*, n.d. "Pandemic Influenza." Accessed 27 Aug. 2009. Available at: http://www.globalsecurity.org/security/ops/hsc-scen-3_pandemic-influenza.htm
- ³² Center for Disease Control (CDC), "Novel H1N1 Flu Situation Update – June 26, 2009", *FluView*, <<http://www.cdc.gov/h1n1flu/update.htm>>. (June 29, 2009).
- ³³ World Health Organization (WHO). "Nations with Confirmed Cases of A/H1N1 Swine Flu Virus." Accessed 9 January 2010. Available at: <http://www.who.int/csr/don>.